DOCUMENT RESUME

ED 375 841 IR 055 232

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TITLE Integrated Library Instruction for Technology Courses.
PUB DATE [94]
NOTE 22p.
PUB TYPE Reports - Descriptive (141) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Libraries; *Course Integrated Library Instruction; Higher Education; *Librarian Teacher Cooperation; *Library Services; *Library Skills; Questionnaires; *Technology Education
IDENTIFIERS Central Missouri State University

ABSTRACT

This description of an integrated library instruction for technology course at Ward Edwards Library, Central Missouri State University (CMSU), begins with an overview of traditional library instruction practices. Problems with the traditional approaches are discussed, and it is suggested that one solution would be to create library instruction that will help students complete assignments for a class. For several years, the Science and Technology Librarian at CMSU has worked closely with the faculty of the Department of Power and Transportation to construct library orientation sessions that would be more meaningful to students enrolled in the department's courses. Students in three courses--Power Mechanics (introductory), Aviation Safety, and Technical Report Writing--attend a library orientation session which covers online computer searching, use of the library online catalog, paper indexes for periodicals, and various CD-ROM databases. More time is spent on the efficient use of CD-ROM database searching for the advanced courses, and students are expected to develop their own search strategies and search several "appropriate" databases. A computer-assisted instruction program is available for use by students in the introductory course as an alternative to the traditional library orientation tour. Students in all three courses receive an assignment that the librarian grades and forwards the grades to the instructors. Over 95% of the class returns the completed assignment, which is equivalent to a major project or test in the course. In response to a survey conducted over several semesters, a large percentage of the students agreed that the library instruction was valuable to them in other courses as well. Copies of sample library assignments and an assessment form are appended. (JLB)

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ED 375 841

INTEGRATED LIBRARY INSTRUCTION FOR TECHNOLOGY COURSES

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INTEGRATED LIBRARY INSTRUCTION FOR TECHNOLOGY COURSES

INTRODUCTION

Until 1876 librarians were more concerned with acquiring and organizing materials, rather than helping patrons locate what they needed. In that year Samuel Swett Green presented a paper titled "The Desirableness of Establishing Personal Intercourse and Relations Between Librarians and Readers in Public Libraries." Green looked at libraries from the perspective of the needs of the patrons and pointed to their lack of knowledge in using the catalog and other materials to fulfill their research needs. He believed by offering this type of assistance to their clientele, libraries could establish a better rapport with their patrons and appear to them in a more positive light.[1]

Although there have been great strides and remarkable changes made in the styles and methods of conveying library research skills to students, the need for more effective and less time-consuming ways to handle library instruction, especially in the specific subject research methods, is still a major concern of academic librarians.

Generally, there have been two ways to introduce new students to the beginning steps in locating materials and conducting library research. These are

a. Structured Library Course

b. Traditional Orientation Tour [2]

Material written about the subject suggests that the most effective way to teach basic library research skills to undergraduate students is the library instruction course offered for 1-3 semester hours of credit. The library staff and/or members of the Department of Library Science, if one exists, are usually delegated this responsibility.

This method of library instruction can be performed in a variety of modes. The first approach is the conventional classroom lecture, much like those offered on just about any college campus today.

A second approach is the use of programmed texts. A student using this method completes the course work during his/her own time and at his/her own pace. These first two methods might also incorporate audio-visual teaching aids.[3]

The final method used in teaching library instruction for course credit is the use of a computer program. This too would be completed in a time-frame set by the student and at the student's own pace.[4]

Other than the methods used above, new students can also be introduced to the library facilities, organization and services (orientation) of the library, the necessary library skills, and the basic sources necessary to conduct research (instruction) by the "quick and dirty" method -- attending a traditional library tour. A guide leads a group of students through specific areas of the library, instructing them on the use of the library catalog,

periodical indexes, newspaper indexes, CD-ROMs and unique area collections. The tour normally takes no more than one hour and is offered primarily to departmental classes within the various schools and colleges on campus.

Robert Harlan best described this type of library instruction when he stated:

> Batches of students - I have seen as many as thirty in a group - are herded through a dozen or so stations. The guide is not always a librarian, nor is he always well- prepared. "This," he says with a wave of his hand, "is the Periodicals Room." "That," with a nod, "is CBI, a universal English language bibliography, dictionary arrangement, with author, title, and subject entries. You must remember that the main entry is author." Then with thirty students standing five deep around a card catalog drawer, the guide proceeds to dispatch with main entry, tracings, call numbers, etc., all of which are the product of a system, the convolutions and subtleties of which would call forth the admiration and envy of a Byzantine administrator. Small wonder that at the third or fourth station, most of the students stop listening. Libraries and librarians, they conclude, are as bad as anticipated. Obviously one's efforts are best applied in finding ways of avoiding, not utilizing the library. [5]

This is a 1970 description of a library tour; however, that description is probably true not only of many academic library tours given before 1970, but also of those still being given today.

This traditional library tour can also be offered as, or replaced by, a self-guided exercise, with the patron using pamphlets, audiocassettes, or possibly videotapes. There are some instances where a film or slide presentation may be shown first, with a guided tour offered afterwards.[6] Regardless of which of these methods are used, the specific needs of the student may not be met.

Statement of the Problem

Exposing students to the traditional library tour to instruct them on the use of basic library research tools and methods of research is not effective for the needs of most classes. Nor is it meant to be. As noted by A. Carolyn Miller, the library tour is a means of offering students a look at the physical structure and the enormous amount of material gathered in that structure. Miller concludes the anachronistic library tour, which could be an embarrassment, is not designed to teach students the various research tools and how they are used. It merely exposes students to a building, its contents, and the people who work there.[7]

At most institutions the problem is how to best go about making the initial contact between the student and the library, not only a pleasurable one, but also interesting and reinforcing for classroom assignments. The classroom instructor has two dilemmas -- how to cultivate a desire in the student to properly research an assigned topic, and how to foster within the student a positive reinforcement of their initial utilization of the campus library.

Librarians place a major distinction between the concepts of orientation and instruction. A library tour is a form of library orientation because it deals with what types of materials are found within the building and where these materials are located. On the other hand, instruction is a teaching activity. For example, instruction is given on

the correct search strategy appropriate to locate information and how to use appropriate research tools in order to access the citations and/or gather the needed information.

What is needed instead of tours, and/or library instruction that is not relevant to the subject matter for the class in which the student is enrolled, is library instruction that will help them complete assignments for a particular class. And in order for this to take place the librarian and the classroom instructor must work together to formulate a plan to make the library instruction session as meaningful as possible.

Possibly, the first step in this process is the education of teaching faculty in the services offered by their campus library. Classroom faculty may not be aware that such cooperation exists.

Integrated Library Instruction for Specific Courses

Central Missouri State University (CMSU) is a state-supported university located in Warrensburg, Missouri and has a student population of approximately twelve thousand. The professional librarians (faculty) in Ward Edwards Library are asked to provide tours for many classes. Objectives for these tours entail general library orientation, with an introduction and instruction in the use of basic research tools such as LUIS (the online catalog), information located on a LUIS record, Library of Congress Guide to Subject Headings, periodical indexes (with major emphasis on the

Readers' Guide), and newspaper indexes (emphasizing the New York Times Index).

Librarians at CMSU have normally waited for instructors to contact the library to request that a brief tour (normally 45 - 50 minutes) be given to their classes. When, and if this happens, it is usually prior to the assignment of a class paper.

There seems to be agreement that the traditional term paper may not be the best vehicle for library instruction, and creative course assignments may serve as better alternatives. Examples of such assignments abound in the literature. In creating such assignments, it is crucial to link the library experience and course work. Timeliness is important and it is recommended that instruction be provided within a short period of time of the actual assignment.

The Department of Power and Transportation at Central Missouri State University (CMSU) offers degrees in both Automotive and Aviation Technology. Students normally begin their first year by taking a foundations course titled "Power Mechanics." The class incorporates a broad range of natural and man-made energy and power systems. This is one of several classes that lends itself to specific library instruction in order to educate students in the most efficient and effective ways of conducting research.

For several years the Science and Technology Librarian at Central Missouri State University has worked closely with

several faculty of the Department of Power and Transportation to construct library orientation sessions that would be more meaningful to students enrolled in several of that department's courses. Everyone agreed that if the students were expected to take the library sessions seriously, then some sort of applicable exercise must be assigned, collected and graded.

During all library visits the students are introduced to various techniques of research, depending on the course and what was expected of the students by the course instruction. More general courses require only the basic rudiments of library research, while students in the more advanced courses have to demonstrate higher levels of research skills. Eventually, three separate assignments evolved that offer students the challenges necessary for pertinent research in their specific class -- Pr&T1010 Power Mechanics, Pr&T4050 Aviation Safety and IA&T3060 Technical Report Writing.

Since on-line computer searching, especially CD-ROM databases, are at the forefront in completing research, students in any of the three courses must attend an orientation session, along with their instructor, in order for the library faculty to demonstrate what is expected for the assignment they will receive. These sessions last from 50 -90 minutes and include orientation in the use of the library online catalog, paper indexes for periodicals and various CD-ROM databases.

As stated earlier an assignment is given to each student in one of the three different courses, with no student in that class having the exact same assignment. All three assignments are given a completion date with enough time for the students to finish and turn it. The exercise is handed out and returned to the librarian for grading.

Again, the classroom instructor receives the grades for the students, but does not see the actual completed assignment. After the required date for turning in the assignments is reached, the students turn in the assignment to the librarian, who grades all of the exercises and forwards the grades to the instructor. This way the student must approach the librarian if they wonder why they received a specific grade.

Power Mechanics is an introductory course for the department. The orientation session and accompanying assignment is very general, requiring only the rudimentary skills necessary in using the library. (See Figure 1) For Part 1 of the assignment the student is asked to go to the library computer center and check out a library orientation computer disk. In 1988 a computer-assisted instruction program was constructed, entitled "Libraries and the Search for Knowledge: A Computer Program" using version 7.0 of Utah PILOT (Programmed, Inquiry, Learning Or Teaching), to use as an alternative to the traditional library orientation tour.

An experimental study was conducted to determine whether it was comparable in its teaching abilities and the CAI program proved to be equal to the general library tour as a teaching method. Since then it has been substituted by several faculty in lieu of the traditional library class tour. For Part 2 of the exercise, students are asked to answer questions posed and make printouts of records when required from general CD-ROM products.

Aviation Safety is more advanced and it is assumed that its students are a little more familiar with the library. More time is spent on the efficient use of CD-ROM database searching, including Boolean operators, truncation, specific-field searching, etc. The students must develop their own search strategy for an assigned topic, search in several "appropriate" databases (e.g. business, government, education, industry, technology, etc.) and download and make prints of different records on each assigned topic. (See Figure 2)

Technical Report Writing is another advanced class in which students are required to carry out research, write a small paper and compile a bibliography according to a particular style manual. Instructors for this class are not only concerned with their students having the ability to conduct library research, but they feel that it is also important to cite literature in an appropriate manner.

Most of the library session is spent on the efficient

use of CD-ROM databases, with some time spent on correct bibliographic format. For the library assignment, students in this class not only have to develop a search strategy and complete research on an assigned topic, but they must also compile a bibliography using correct style manual format.

Over ninety-five percent of the class returns the completed exercise. Why? Because the grade of the assignment for each of the three different classes is equivalent to a major project or test; therefore, the students realize their grade could be in jeopardy if they choose not to complete the exercise.

One question that could be asked is what do the students think about the library instruction and assignments they are required to complete. A survey was conducted over several semesters and a large percentage of students agreed that the instruction they were given to help complete the library assignment not only helped with later course work in that particular class, but also extended over into other classes they were taking. The biggest complaint, or actually request, was that students would like to have received some "on-hands training" during the library instruction session.

Another instrument showing the success of these library assignments in making the student a better library user is a collaborative writing assignment that began in the Technical Report Writing (IA&T3060) class three years ago. Students are assigned by the course instructor to form teams

of individuals of different academic majors. The teams consist of three or four members. Each team selects a team leader, who is directly responsible for reporting on the progress of the team to the instructor. At the end of the assignment each team member gets an opportunity to fill out an evaluation form. (See Figure 4)

The form is passed out on the day the project is due and a team grade is assigned, based upon the input from each team member. If there is a disparity in the responses of the team members, a joint meeting is called with the instructor to determine the outcome of the individual team grades.

This assignment would not be possible if the team members did not have an equal foundation in the use of library research tools and research methods. Because of the integrated approach to subject research offered to the entire class, team members have some idea of the materials available to complete the group project and how to identify them.

Conclusion

The concern to educate students in library skills is not new, as is noted in the 1883 annual report of the Columbia University president. In this report he concludes:

> The average college student . . . is ignorant of the greater part of the bibliographical apparatus which the skilled librarian has in hourly use, to enable him to answer the thousand queries of the public. A systematic instruction would so start our students in the right methods, that for the rest of their lives all their work in libraries would be more expeditiously accomplished. . . . In fact, it is hardly an exaggeration to say that now students often . . . spend

half their time in the library finding out what they don't want to know, and the remaining half in getting confused notions of what they do want to know. [8]

At Central Missouri State University librarians and classroom instructors are working together to see that students in specific classes are being instructed in the use of library tools and research that are meaningful for them in the completion of class assignments. Students are understanding more about the library and services offered, how to choose CD-ROM databases for specific subject areas, how to develop a good search strategy, and the correct format for constructing bibliographic citations. In essence, students are viewing the library and its resources with a positive outlook.

FIGURE 1

Pr&T1010 Power Mechanics
EXERCISE #1
LIBRARY ORIENTATION/INSTRUCTION PROGRAM

Name: _____

Instructor: _____ Day: _____ Time: _____

Instructions

Go to the SIC (Self-Instruction Center) in the basement of the library, stop to check-in and provide your ID at the first computer at the SIC counter, and ask to check-out a "Library Orientation/Instruction" disk from the box marked **CAI - Lonnie Lawson**. ***This program must be completed in one "sitting" of approximately one hour.***

1. Sit at an IBM compatible computer with a Printer next to it. 2.Get the C:\ prompt either by pressing **<F10>** to exit the menu or **<ALT>** + **<F4>**, then press **<ENTER>** to exit the burgundy Windows screen.
3. Type **A:** then press **<ENTER>** if disk is in Drive A (**B:** for Drive B).
4. At the A:\ prompt type **START** to begin the program.
5. For additional help, ask an SIC/MC employee at the counter.

At the end of the program you will be given a "Final Exam." After you have completed the Final Exam the program will ask you to type your name and the name of your instructor, then it will instruct you to place a sheet of paper into the printer so that your "Certificate" can be printed. You **MUST** insert paper now or your Certificate will not print.

After Certificate has printed, type **C:**, press **<ENTER>**, then type **Menu** or **Win** (Look at monitor above the A:\ prompt) to return the computer to its original screen. Take the disk out and return it to the SIC Counter's second computer to Check-out and get your ID.

Staple this sheet of paper (with the Certificate printed on the reverse side) to the rest of your assignment and return to **Dr. Lonnie Lawson** Room 132 or leave at the Reference Center. Assignment is DUE: **February 4**

*** If you need help in starting the program, or in loading the paper so that the Certificate can be printed, ask at the SIC Help Desk. ***

I

Pr&T1010 Power Mechanics
EXERCISE #2
CD-ROM/LUIS

Name: _____
Instructor: _____ Day_____ Time____

I. Using the CD-ROM for Applied Science & Technology look up the following subject heading (BROWSE) and in the space provided write down the number of citations listed for that heading.

Windmills _____

II. Using the CD-ROM for ProQuest look up the following subject heading and in the space provided write down the number of citations listed for that heading.

Greenhouse Effect _____

III. Using the CD-ROM for Applied Science & Technology find the following citation with the information given and copy the full citation on the back of this paper. Next, use LUIS or the Periodical "printout" to determine if the library subscribes to this particular magazine.

Find an article by Mark A. Prelas about conversion methods for cold fusion in Fusion Technology magazine.
Does the library subscribe to this magazine? _____

IV. Using the CD-ROM for ProQuest find the following citation with the information given and copy the full citation on the back of this paper. Next, use LUIS or the Periodical "printout" to determine if the library subscribes to this particular magazine.

Find an article by Clifton Karnes on Energy Conservation.
Does the library subscribe to this magazine? _____

V. Take the following information and use LUIS to locate and print a copy of the LUIS record for both of these books:

a. Book on Power Mechanics by K. Denno
b. Book with the title "Energybook."

Find one of these two books on the shelf and xerox a copy of the title/copyright page and attach it to this paper. If both books are checked out, go to the Circulation Desk and have one of the workers to place their initials on this paper.

II

FIGURE 2
Pr&T4050 Aviation Safety
LIBRARY CD-ROM/INDEX EXERCISE

Your Name: _____

Instructor _____

Below are seven exercises to help you become more familiar with research tools to locate information in Ward Edwards Library. This exercise is due no later than Fri., Jan. 28th. Please return the assignment to Dr. Lonnie Lawson (Room 132 in the library) or give it to someone at the

Reference Center on the first floor of the library.

Please pay particular attention to each section of this assignment. Sometimes you are asked to make copies of citations, etc. Attach all copies to this exercise paper. Make sure your name is on each sheet (just in case). This exercise is worth 35 points.

I. Using the National Technical Information Service (NTIS) CD-ROM locate an NTIS research report using the following information. After you have found the correct record make a copy of the record and attach it to this paper.
Find a research report about Aircraft-noise by P. Janssen.

Does the library have this research report? _____

II. Use the index to the National Fire Protection Association's (NFPA) National Fire Codes to locate a standard for the following. Then locate and make a copy of the standard's first page from the NFC Codes.

Find the correct NFC standard about exits in Airport terminal buildings.

III. Using the CD-ROM for Applied Science & Technology look up the following subject heading (Browse Mode) and in the space provided write down the number of citations listed for that heading.

AVIONICS/MINIATURIZATION _____

I

IV. Using the CD-ROM for Applied Science & Technology find the following record (Wilsearch Mode) with the information given and make a copy of the record and attach it to this paper. Next, use LUIS or the Periodical "printout" to determine if the library subscribes to this magazine.

Find an article by Christopher P. Fotos about Aviation/Safety Measures.

Does the library subscribe to this magazine? _____

V. Using the CD-ROM for ERIC find the following record with the information given and make a copy of the record and attach it to this paper. Next take the call number (ED #) and go to the Periodicals Room to see if the library has this research report.

Find a research report (has an ED number) by Walter Zaharevitz about Aircraft-Pilots.

Does the library have this research report? _____

VI. Using the CD-ROM for PSYCLIT find the following record with the information given and make a copy of the record and attach it to this paper. Next use the title of the magazine and search in LUIS to determine if the library has this particular journal.

Find the article by S. L. Chappell about Flight-Simulation.

Does the library have this magazine (check LUIS)? _____

VII. Using the CD-ROM for Government Documents find the following record with the information given and make a copy of the record and attach it to this paper. Next take the call number (SuDOC number) and go to the Government Documents Area of the library to see if the library has this government publication.

Find the government publication about Airplanes-Airworthiness with the call number: TD 4.8/5:21-2 F.

Does the library have this publication? _____

II

FIGURE 3

IA&T3060 Technical Report Writing LIBRARY CD-ROM/INDEX EXERCISE

Your Name: _____

Instructor _____

Described below are two exercises to help you become more familiar with the various research tools to locate information in the Ward Edwards Library. This exercise is due NO LATER THAN Oct. 29. Please return the assignment to Dr. Lonnie Lawson in Room 132 of the library, or give it to someone at the Reference Center on the first floor of the library.

I. Use the index to the Annual Book of ASTM Standards and locate a standard for the following. Then locate and make a copy of the standard's first page from the ASTM Standards.
Find the correct ASTM standard for Child resuscitators.

II. Each of you will be writing papers which will require some critical thinking and analysis. The following topic being assigned to you may or may not be relevant to the subject that you choose in this course. You are to use any of the following CD-ROMs to locate information on your assigned topic: ERIC, INFOTRAC, NTIS, Applied Science & Technology, CINAHL, PsycLit, SocioFile, Readers Guide, OSH-ROM, ABI Inform, Dissertation Abstracts, IMPACT/GDCS (Government Documents), and Life Sciences. You will need to use the print or the online Thesaurus, if one exists, for each database and determine appropriate subject terms to search for information on your topic. Locate and make printouts of ten (10) different records from at least four (4) appropriate CD-ROMs. Any combination of records will do, as long as you have ten printed records from at least four different CD-ROM products. The printouts should be in full records, not the brief record or the citation only. If there is an abstract, you should print it. If you choose an appropriate CD-ROM for your subject and you come up with no records, then just print a copy of the screen with the search strategy on it. There is nothing wrong with doing a correct search in an appropriate CD-ROM and coming up with no "hits." If this happens, then that search will count as using one of the four databases and the printout will count as one of the ten records. **BUT, THE SEARCH MUST BE COMPLETED IN AN APPROPRIATE CD-ROM INDEX, NOT JUST "ANY" CD-ROM.**

TOPIC: Non-gasoline powered vehicles

I

IA&T3060 Technical Report Writing
LIBRARY CD-ROM/INDEX EXERCISE
SEARCH STRATEGY SHEET

Having a good search strategy is crucial in completing a good search -- CD-ROM or otherwise. Therefore, you should have clearly stated what your strategy will be before you go online to begin the search. If not, you might 1) retrieve too many, irrelevant citations, or 2) retrieve zero, or too few, citations.

As a part of this assignment you will need to determine the separate concepts that you would have to search in order to locate information on your topic. For example, if your topic were "Regulation of Farm Chemicals" you might determine that you have three concepts -- Regulation and Farm and Chemicals.

Next, you would need to determine if each of these concepts have similar terms that would mean the same thing (Synonyms). For example, other terms for regulation might include law(s), code(s), liability or legal(ities), etc. For Farm, other terms might include agriculture, ranches, or agricultural. And for Chemicals you might want to use hazardous substances, pesticides, dioxin, toxic substances, benzene, detergents, etc.

Use the topic that you have received on the previous sheet and on this sheet of paper list the various concepts that you can pinpoint and then list "other" terms that you may want to use as subject headings/descriptors when searching the various databases.

CONCEPT #1	CONCEPT #2	CONCEPT #3
TERMS	TERMS	TERMS

II

FIGURE 4

COLLABORATIVE WRITING GROUP PROJECT ASSESSMENT

Name _____
Team Member(s) Names _____ _____
_____ _____

1. What is your estimate of YOUR overall contribution to the entire project. (Use an X to identify)
   _____ Much more than other participants
   _____ More than other participants
   _____ About the same as other participants
   _____ Less than other participants

2. Did you enjoy working in a team or group situation?
   _____ Very rewarding activity
   _____ Somewhat rewarding activity
   _____ Did not enjoy it

3. What did you find most pleasant (enjoyable) while working on this type project? (Short answer required)

4. What did you find least pleasant (major problem) for you while working on this project? (Short answer required)

5. Would you like to work as a group or team on other writing assignments? _____ Yes _____ No
   (Indicate Why)

6. Did your team or partners contribute:
   _____ Significantly more to the project than I did
   _____ About the same as I did
   _____ Significantly less than I did

7. Did you have difficulty finding "Compatible" to work on the project? (Provide explanation)
   _____ No major problems
   _____ Some difficulty
   _____ Significant problems

8. How would you evaluate your partners or team members' grades. **NOTE:** Base it only on: Time, Contributions Made and Working Relationship with Group. Do not base it on personality or person's appearance.
   _____ Significantly higher than your own
   _____ Somewhat the same
   _____ Somewhat less
   _____ Significantly less

YOU MUST briefly indicate "The Why" for the above selection

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